

Translation

PATENT COOPERATION TREATY

PCT/JP2003/015427



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PC-9015	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/015427	International filing date (day/month/year) 02 December 2003 (02.12.2003)	Priority date (day/month/year) 02 December 2002 (02.12.2002)
International Patent Classification (IPC) or national classification and IPC G03F 7/40, H01L 21/027		
Applicant TOKYO OHKA KOGYO CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☒ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☒ Box No. VIII Certain observations on the international application

Date of submission of the demand 27 May 2004 (27.05.2004)	Date of completion of this report 06 October 2004 (06.10.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims	9, 10	NO
Inventive step (IS)	Claims		YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: JP, 5-315241, A (K.K. Sorutecku), 26 November, 1993 (26.11.93), claim 1, paragraphs [0022]-[0028]

Document 2: JP, 2002-299223, A (Matsushita Electric Industrial Co., Ltd.), 11 October, 2002 (11.10.02), paragraphs [0014] and [0028]-[0044]

Document 3: JP, 2000-338674, A (Fuji Photo Film Co., Ltd.), 8 December, 2000 (08.12.00), claim 1, paragraphs [0131]-[0134]

Document 4: JP, 9-82629, A (K.K. Sorutecku), 28 March, 1997 (28.03.97), claim 1, paragraph [0019]

Document 5: JP, 7-226358, A (Hitachi, Ltd.), 22 August, 1995 (22.08.95), the claims

The subject matters of claims 1 and 6-8 do not appear to involve an inventive step in view of documents 1-3. Document 1 describes a resist pattern forming method wherein, in a rinsing process in the development of a resist pattern, a substituent liquid for a rinsing liquid is made into a critical state in the drying. Documents 2 and 3 describe a positive resist composition having a less than 20 mol% content of alkali soluble units and an acid-dissociation solution suppressing group, and containing a resin component (A) whose alkali solubility increases due to the effect of an acid, an acid producer component (B) to produce an acid by exposure to light, and an organic solvent (C) to dissolve the components (A) and (B). A person skilled in the art could have easily used the positive resist composition taught in documents 2 and 3 in the resist pattern forming method described in document 1.

The subject matters of claims 2, 4 and 5 do not appear to involve an inventive step in view of documents 1-5. Documents 4 and 5 describe an invention wherein water rinsing is performed after the alkali development and then the substitution by a fluorine-inactive liquid is performed. A person skilled in the art could have easily adopted the inventions taught in documents 4 and 5 for the resist pattern forming method described in document 1.

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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
JP 2003-243352 A [E, X]	29.08.2003	23.04.2002	10.12.2001
JP 2003-142368 A [E, X]	16.05.2003	31.10.2001	
JP 2003-337406 A [E, X]	28.11.2003	22.05.2002	
JP 2003-92240 A [E, X]	28.03.2003	18.09.2001	

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The disclosure of the specification in the sense of PCT Article 5 is only a resist pattern forming method wherein (1) water rinsing is performed after the alkali development, (2) then the liquid present on the board is replaced with a first fluorine inactive liquid, (3) then the said liquid present on the board is replaced with a second fluorine-inactive liquid containing a surfactant, (4) then the replacing liquid is replaced with a critical drying liquid, and (5) a drying process wherein the said critical drying liquid is dried through a critical state is performed.

Accordingly, the subject matters of claims 1-10 are not supported by the disclosure of the specification in the sense of PCT Article 6.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: V

The subject matter of claim 3 does not appear to involve an inventive step in view of documents 1-4. Document 4 describes that a rinsing liquid added with a surfactant is used. A person skilled in the art could have easily adopted the invention taught in document 4 in the invention described in document 1.

The subject matters of claims 9 and 10 do not appear to be novel in view of document 2. Document 2 describes a resist pattern having a high aspect ratio with a thickness of 0.4 μm , and a line width of 0.11 μm or 0.10 μm . The subject matters of claims 9 and 10 as a resist pattern are the same as the invention described in document 2.